UNITED STATES MARINE CORPS
Logistics Operation School
Marine Corps Combat Service Support Schools
PSC Box 20041
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1315

STUDENT OUTLINE

EMBARKATION MANAGEMENT OF HAZARDOUS MATERIAL

LEARNING OBJECTIVES

1. Terminal Learning Objective: Given the requirement to move a unit, the applicable transportation assets, unit embarkation date, operations order, and the references (with or without automated systems), supervise a unit movement to ensure execution is completed with in the required time frame. (0402.04.02)

2. Enabling Learning Objective:

a. Given references, unit equipment and supplies identify hazardous material publications to validate transportation requirements for hazardous material.

b. Given references, unit equipment and supplies identify hazardous material by hazard class and identification number in accordance with the references.

c. Given references, unit equipment and supplies identify packing requirements and procedures in accordance with the references.

d. Given the references and hazard classes for hazardous material within the unit determine segregation requirements to ensure proper construction of cargo on a 463L pallet and in overland transportation.

OUTLINE

1. PUBLICATIONS – Different publications are used to certify Hazmat. Some of these publications may show exclusions due to the type of movement. The DOD 45000.9-R Part III, Mobility outlines the necessary publications that

pertain to each mode of transportation. One of these publications is federal law but the Department of Transportation endorses other publications for use but still requires everything to be moved in accordance with CFR 49.

a. CFR 49, Department of Transportation Hazardous Materials Regulation - This Publication is federal law concerning Hazmat. The CFR covers regulations for all modes of shipment to, from, or through the United States. The parts that cover the actual certifying regulations are covered in parts 171 through 173.

b. MCO P4030.19G, Preparing, Hazardous Materials for Military Air Shipments - This is a joint regulation that sets the standard for shipment by military air. This order provides guidance for shipment of Hazmat in tactical and contingency operations. The regulation allows certain exclusions but is in conjunction with the CFR 49.

c. IMDG, International Maritime Dangerous Goods Code - IMDG is international guidance for transportation of Hazmat by commercial sealift. This code mirrors the CFR in many ways but is not as strict due to less restrictive international requirements.

d. SW020-AC-SAF, Transportation and Storage Data for Ammunition, Explosives and Related Hazardous Materials - This publication gives information regarding ammunition and categorizes specific Department of Defense Identification Codes to what type of hazardous material it is. In short, this pub is used to translate from U.S. military terminology to the universal Hazmat language.

e. OP 5, Ammunition Ashore – This regulation encompasses the requirements for handling and storage of ammunition in-transit. These requirements are important when assembling and managing staging and marshaling areas where ammunition will be part of the transported cargo.

f. OP 4550, Ammunition Afloat – Specified in this reference are the regulation for the stowage of ammunition aboard amphibious ships. This information is critical when supervising load planners efforts in planning the stowage of training ammunition that supports the Battalion Landing Team (BLT).

g. HAZMAT Aboard Amphibious Ships – The Ship's Loading Characteristics Pamphlet (SLCP), Troop Regulations, and individual ship orders specify requirements for hazards other than ammunition. The best source to identify requirements for the loading of HAZMAT is the Combat Cargo Officer who understands the requirements unique to his/her ship. Coordination should be conducted in as much advance as possible by submitting a listing of cargo for guidance on the requirements for load planning.

h. ICAO, International Civil Aviation Organization Code - Regulation for shipment of Hazardous Material via commercial air. This regulation is internationally recognized and standardizes procedures for shipment throughout the world. Restrictions for certain shipments to specific countries are outlined. This publication is revised and released every year.

i. IATA, International Air Transport Association - Basically the same thing as the ICAO but transcribed and formatted for easier use. This publication is produced every two years.

2. IDENTIFYING HAZMAT

a. Each hazardous material publication will assist in the identification of hazardous materials. The only acceptable means of determining if material and supplies are hazardous is to research in the applicable tables with the references for an entry. Simply put, if the material is not listed in the reference, it isn't hazardous.

b. After reviewing the unit cargo list to help identify the material the CFR 49 is needed to provide some further information. Part 172.101 contains a table that is commonly referred to as a base point of information. This table is sorted in alphabetical order by proper shipping name.

(1) Column (2) Proper Shipping Name [pg. 97] – Lists authorized names for hazardous materials that are authorized for shipment. Italic text are not part of the PSN.

3. IDENTIFYING HAZARD CLASSES

a. Column (3) Hazard Class or Division [pg. 100] – Shows the alphanumeric number that identifies the type of hazard that the material presents. This column also identifies material that is not authorized for shipment in CONUS by showing the word forbidden. The hazard classes are all defined at the beginning of each subchapter in part 173. They break down as follows:

(1) Class 1 Explosives – This class includes any type of material that has the potential of doing anything from pop to boom. This class has subdivisions that describe the type of threat that explosives have [pg.402].

Common examples – Anything received from the Ammunition Supply Point (ASP) from 5.56mm to 100 lbs Bombs.

(2) Class 2 Compressed Gas – This class describes any gas that is contained in a cylinder. It also has three subdivisions that give further information as to the nature of the gas such as flammable gas (2.1), non-flammable gas (2.2) and toxic gas (2.3) [pg. 433].

Common examples – Fire Extinguishers, Butane

(3) Class 3 Flammable Liquids – This class describes any material that might ignite due to a given temperature. There are three subdivisions, each describing a range of flash points (the temperature at which the material will ignite) [pg. 434].

Common examples – Paint, Gasoline, Diesel Fuel, Petroleum Oil

(4) Class 4 Flammable Solids – This class defines any material that will ignite due to a heat source. As with class three there are three subdivisions that describe whether the material is flammable solid, spontaneously combustible or dangerous when wet [pg 436].

Common Examples – Matches, Strike Anywhere

(5) Class 5 Oxidizers – Describes material that contains oxygen and has the potential of reacting with other substances. This class has two subdivisions that describe whether the material is organic or in-organic peroxide [PG. 439].

Common Examples - Peroxide

(6) Class 6 Toxic – Defines any material that has a poisonous nature to humans. This class has two subdivision that describe the material as being infectious or not [pg. 441].

Common Examples – Cleaning Gear,

(7) Class 7 Radioactive Material – Class 7 material is any type of material that produces curies.

Common Examples – Howitzer night sites, lensatic compasses, depleted uranium.

(8) Class 8 Corrosives – Are materials that cause visible destruction to human skin tissue upon contact or severe corrosion on steel or aluminum [pg. 447].

Common Examples – Batteries, cleaning gear, acidic compounds

(9) Class 9 Miscellaneous Hazardous Material- Any material that presents a hazard during transportation that does not meet the definition of any hazard class [pg. 448].

Common Examples – Vehicles, lithium batteries, CO2 cartridges.

4. PACKING AND PACKAGING REQUIREMENTS

a. Hazardous material requires specific types of packages. These packages are required by federal law to be designed to specific standards to contain potentially dangerous material. Each type of package is assigned a code that describes it as Performance Oriented Packaging (POP). The hazardous material certifier is responsible for researching the acceptable type of package for the material and ensuring the package used reflects the POP marking as shown in figure 1. These packages can be purchased at Self Service for the hazardous material certifier to package HAZMAT at the unit. Another source is to request Packing, Packaging & Preservation (PP&P) under the FSSG to package hazardous material. Utilizing this organization induces cost and in most cases is more expensive than the unit HAZMAT certifier performing this function.

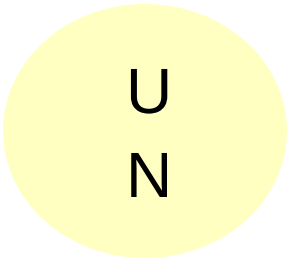

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Figure 1

b. Not only is a package required to be to POP standards but also requires to be marked with the required information to describe the contents and nature of the hazardous material. Different information is required for marking based upon the hazardous material but at a minimum the container must have the following things marked clearly away from other marking in this order:

(1) Proper Shipping Name
(2) Identification Number
(3) Hazard Class
(4) Packing Group
(5) Amount (in weight or liters)

Some substances may require additional marking depending on the hazard. For example, ammunition also requires the NSN, DODIC, and NEW (net explosive weight). Once the package is marked a label corresponding to the appropriate hazard class is always required. An example is shown in figure 2.

Figure 2

c. In the process of packing hazardous material segregation is critical. Obviously, not all hazardous material can be put together without the potential for

volatile reaction. Guidelines for compatibility are outlined in all hazardous material publications.

5. COMPATIBILITY

a. Obviously hazardous material has the potential of reacting with other hazmat. The Segregation Table for Hazardous Materials is what will let the shipper know what hazards can be loaded with other hazards. Although the table uses hazard classes the check compatibility, often there are special restrictions within and individual schedule (or specific hazardous material), it the responsibility of the shipper to check the individual schedules for the material.

b. Air Movement –

(1) Two tables are used in establishing compatibility. The table reflected on page 340 (Table A18.1) is used to establish segregation requirements between two hazard classes. The codes are explained on page 339 in paragraph A18.2 are translate to:

(a) BLANK - No segregation required
(b) X - Items are **not** to be put together in the same package, 463L pallet or aircraft.
(c) 0 - Items cannot be loaded on the same 463L pallet but can be loaded on an aircraft together if separated by a 463L pallet position.
(d) 1-8 - Refer to notes at the bottom of the table and refer to individual schedules.

(2) All hazard classes are compatible with a hazard with the same hazard class with the exception of ammunition. Obviously placing an explosive charge with a detonator could be a disastrous combination. For this reason, the table shown on page 341 (Table A18.2) is used to establish compatibility within class 1. The codes are explained on page 339 in paragraph A18.3 and translate to:

(a) BLANK - No segregation required
(b) X - Items are **not** to be put together in the same package, 463L pallet or aircraft.
(c) 1-7 - Refer to notes at the bottom of the table and refer to individual schedules.

(3) Once compatibility is established and the hazard(s) are built on a 463L pallet the pallet must be placarded with a corresponding placard to each hazard class on the pallet. In the case of ammunition, only the highest hazard class is placarded in all other instances each class is shown. The Shipper's Declaration For Dangerous Goods form will also accompany the pallet.

c. Surface Transportation – To research the segregation requirements for mobile loading of vehicles, rail and commercial sea (if IMDG is unavailable) the 49CFR should be used. Part 177.848 stipulates the requirements for segregation via all modes of transportation.

(1) Page 694 reflects the segregation table between hazard classes. The codes are described in part 177.848(e) and translate to:

(a) BLANK - No segregation required
(b) X - Items are **not** to be put together in the same package or transportation asset.
(c) 0 - Items cannot be packed in the same package but requires separation in the transporting asset.
(d) * - Refer to compatibility table for class 1.

(2) Page 965 shows the chart for compatibility within class 1. The codes are described in part 177.848(g) and translate to:

(a) BLANK - No segregation required
(b) X - Items are **not** to be put together in the same package or transporting asset.
(d) 1-5 - Refer to notes at the bottom of the table and refer to individual schedules.

6. CERTIFICATION – Like anything else, paperwork must be done. Forms required are specified in the DOD 4500.9R Part III, Mobility in Appendix AC. Most commonly, the standard form used is the Hazardous Material Shippers Declaration form. The requirement for the use of this form is outlined specifically for military air transportation but can be used for other modes as well. Exemptions and procedures to obtain exemptions are outlined for each mode of transportation.

a. The Hazardous Material Shippers Declaration Form must be filled out and signed in accordance with the procedures outlined under paragraph A17.5. Each key is reflected on an example form shown on pages 335 and 336. The following pages shown examples of completed forms. This form may only be filled out and signed by a HAZMAT certifier who has attended HAZMAT school and has written authorization from the command to perform these responsibilities.

7. TRAINING MARINES TO BE HAZMAT CERTIFIERS

a. The Code of Federal Regulation 49 is federal law that outlines the requirements for shipping HAZMAT from, to or through the continental United States. Any infraction from this publication can lead to a maximum penalty of not more than $25,000 and not less than $250 for each violation. When the violation is a continuing one, each day of the violation constitutes a separate offense (ref 107.329). It is critical that anything outlined in this publication be exactly documented and implemented.

b. It is critical that every unit has at least two Marines who can certify HAZMAT. The certifier is required to attend HAZMAT training and return every two years. Even after a Marine attends HAZMAT school he is still not authorized to certify until he has a letter expressing that he is a competent certifier for the unit. **ONLY CERTIFIED, SCHOOL TRAINED, AUTHORIZED INDIVIDUALS WILL CERTIFY CARGO**. Schools for HAZMAT are taught in the following locations:

(1) Albany, Ga.
(2) Savanna, IL.
(3) Lackland AFB, San Antonio, TX
(4) Aberdeen Proving Grounds, Aberdeen MD
(5) Unit funded mobile training teams

c. Students are taught requirements for identification, packing, marking, segregation, placarding and certification of hazardous material.

d. Schools seats and mobile training teams can be appropriated through the G-4 or S-3 training section. Mobile Training Teams are appropriated for by the unit but CMC/LPO gives each MEF financing to annual HAZMAT training based upon requirements. 0431 Logistics/Embarkation Specialist are mandated by individual training standard to

receive HAZMAT training when they are a Corporal but the training is not restrictive to any one MOS or rank.

REFERENCES:

1. Defense Transportation Regulation DOD 4500.9-R PART III Mobility

2. Preparing Hazardous Materials For Military Air Shipments MCO P4030.19G

3. Code of Federal Regulation Title 49 CFR49